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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/672,460	09/26/2003	Mark Simakaski	067920-1278	3432
39905	7590	08/21/2007	EXAMINER	
ROETZEL AND ANDRESS 222 SOUTH MAIN STREET AKRON, OH 44308			VERDIER, CHRISTOPHER M	
			ART UNIT	PAPER NUMBER
			3745	
			MAIL DATE	DELIVERY MODE
			08/21/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/672,460

Applicant(s)

SIMAKASKI ET AL.

Examiner

Christopher Verdier

Art Unit

3745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 June 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,5-15,17-23,25-32,35-39,42-45,50 and 51 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,5-15,17-23,25-32,35-39,42-45,50 and 51 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 6-7-07 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 7, 2007 has been entered.

The Replacement Sheet of Drawings (figure 2) overcomes the objection to the drawings set forth in the previous Office action. The claims have been amended to overcome the informalities set forth in the previous Office action and to overcome the rejections under 35 USC 112, second paragraph set forth in the previous Office action. Correction of these matters is noted with appreciation.

The independent claims have been amended to recite that the cutter bar is a straight elongated rectangular member extending substantially across a diameter of a generally circular interior passage adjacent to the inlet flange. The examiner agrees with Applicant's argument that Tsukube 4,076,179, Nilsson 3,295,769, and Girardier 3,692,422 do not disclose this feature. However, Klosson 2,265,758, Iwahara 3,866,841, and United Kingdom Patent 1,486,237 teach this feature. Concerning Applicant's argument that Nilsson does not teach a cutter bar that extends across a diameter of a generally circular interior passage adjacent to an inlet flange, this argument is correct, however, Klosson 2,265,758, Iwahara 3,866,841, and United Kingdom Patent 1,486,237 teach this feature. Concerning Applicant's argument that in Nilsson, the

Art Unit: 3745

annular disk portion 32 is separate from and driven separately from the impeller 14, this is correct. However, Nilsson is relied upon to teach that centrifugal impeller 32 has chopping blades 35 that comprise a serrated portion, with the serrated portion comprising plural teeth, for the purpose of aiding in chopping fibrous material or any material passing through the pump, and it would be obvious to combine this feature with the impeller assembly 1 of Tsukube such that the chopping blade comprises a serrated portion comprising plural teeth.

Concerning Applicant's argument that the inlet and outlet ports in Tsukube would have pipes or hoses coupled to the inlet and outlet ports, which would block the inlet and outlet ports from being used as "inspection ports", this argument is not persuasive. Tsukube does not disclose any pipes or hoses coupled to the inlet and outlet ports.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 17-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear which claim that claim 17 depends from, since it depends on canceled claim 16.

Art Unit: 3745

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 3, 5-6, 9-10, 13-14, 15, 17-19, 21-23, 25-27, 29-32, 35-36, 38-39, 42-43, 45, and 50 (assuming claim 17 to depend from claim 15) are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsukube 4,076,179 in view of Nilsson 3,295,769 and either (Klosson 2,265,758 or Iwahara 3,866,841). Tsukube 4,076,179 (figures 6-8) discloses an impeller assembly substantially as claimed, including an impeller assembly 1 to be installed in a pump having a pump housing 2 for enclosing a pumping chamber 19, an inlet flange near 17 through which a fluid is to be introduced into the pumping chamber at a first pressure, an unnumbered outlet flange through which the fluid is to be discharged from the pumping chamber at a second

Art Unit: 3745

pressure, and a rotatable shaft 13 that is to be operatively coupled to a pump driving device (14', see figure 1), the impeller assembly comprising a cutter bar 30/33 to be coupled to the pump housing adjacent to the inlet flange, and an impeller 1 for imparting a centrifugal force on fluid entering the pumping chamber, the impeller being mountable on the shaft at a distance from the cutter bar when the cutter bar is coupled to the pump housing to form a clearance between the impeller and the cutter bar, wherein the impeller comprises a concavity near 9 shaped to direct at least a portion of the fluid entering the pumping chamber generally toward the clearance between the impeller and the cutter bar (see figure 3, noting vortex A). The blades 10 of the impeller function as chopping blades due to their interaction with the cutting bar, and extend from the impeller in a direction generally parallel to a central axis of the impeller. The impeller comprises a surface in a plane extending radially from a central axis to oppose the inlet flange, and chopping blade 10 having a curved member normal to the plane, with the curved member being shaped to create a vortex when rotated and comprises an edge/distal edge to be rotated about the central axis adjacent to the cutter bar. The cutter bar is adjustably coupled to the pump housing between the inlet flange and the impeller to allow adjustment of the clearance between the chopping blade and the cutter bar, via bolts 34. The clearance is suitably sized such that rotation of the impeller adjacent to the cutter bar imparts a shearing force on objects entrained in the fluid entering the pump chamber. The inlet port and outlet port both function as inspection ports, which permit observation of the clearance between the impeller and the cutter bar, via manual inspection or a borescope. The impeller comprises a surface in a plane extending radially from a central axis to oppose the inlet flange, and a chopping blade 10 having a curved member normal to the plane, wherein the curved member is shaped to create a vortex A when rotated and

Art Unit: 3745

comprises an edge to be rotated about the central axis adjacent to the cutter bar. Plural fasteners 34 are provided for coupling the cutter bar to the pump housing adjacent the inlet flange. The inspection port is provided to the inlet flange. Also disclosed is a method for operating the pump, the method comprising receiving the fluid through the inlet flange, rotating the impeller adjacent to the cutter bar to chop objects entrained in the fluid, and directing at least a portion of the fluid entering the pumping chamber generally toward the clearance between the impeller and the cutter bar.

However, Tsukube does not disclose that the chopping blade comprises a serrated portion that passes adjacent to the cutter bar 30/33 during impeller rotation, with the serrated portion comprising plural teeth (claims 1, 15, 22, 31, 39, and 50), and does not disclose that the cutter bar is a straight elongated rectangular member extending substantially across a diameter of a generally circular interior passage adjacent to the inlet flange (claims 1, 15, 22, 31, 39, and 50).

Nilsson (figures 3 and 5) shows a fibrous material chopping pump, whereby a centrifugal impeller 32 has chopping blades 35 that comprise a serrated portion, with the serrated portion comprising plural teeth, for the purpose of aiding in chopping fibrous material or any material passing through the pump.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to form the impeller assembly of Tsukube such that the chopping blade

Art Unit: 3745

comprises a serrated portion comprising plural teeth, as taught by Nilsson, for the purpose of aiding in chopping fibrous material or any material passing through the pump.

Klosson shows a chopping pump having a cutter bar 33 that is a straight elongated rectangular member (faces 34 and 35 form a rectangular member when viewed from the top or bottom of the cutter bar) extending substantially across a diameter of a generally circular interior passage adjacent to an inlet flange 14, for the purpose of reducing the size of solid material entering the pump. Iwahara shows a chopping pump having a cutter bar 7 that is a straight elongated rectangular member extending substantially across a diameter of a generally circular interior passage adjacent to an inlet flange 4, for the purpose of reducing the size of solid material entering the pump.

It would have been further obvious at the time the invention was made to a person having ordinary skill in the art to form the modified impeller assembly of Tsukube such the cutter bar is a straight elongated rectangular member extending substantially across the diameter of the generally circular interior passage adjacent to the inlet flange, as taught by either Klosson or Iwahara, for the purpose of reducing the size of solid material entering the pump.

Claims 1, 3, 5-15, 17-23, 25-32, 35-39, 42-45, and 50-51 (assuming claim 17 to depend from claim 15) are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsukube 4,076,179 in view of Nilsson 3,295,769 and United Kingdom Patent 1,486,237. Tsukube 4,076,179 (figures 6-8) discloses an impeller assembly substantially as claimed, including an

Art Unit: 3745

impeller assembly 1 to be installed in a pump having a pump housing 2 for enclosing a pumping chamber 19, an inlet flange near 17 through which a fluid is to be introduced into the pumping chamber at a first pressure, an unnumbered outlet flange through which the fluid is to be discharged from the pumping chamber at a second pressure, and a rotatable shaft 13 that is to be operatively coupled to a pump driving device (14', see figure 1), the impeller assembly comprising a cutter bar 30/33 to be coupled to the pump housing adjacent to the inlet flange, and an impeller 1 for imparting a centrifugal force on fluid entering the pumping chamber, the impeller being mountable on the shaft at a distance from the cutter bar when the cutter bar is coupled to the pump housing to form a clearance between the impeller and the cutter bar, wherein the impeller comprises a concavity near 9 shaped to direct at least a portion of the fluid entering the pumping chamber generally toward the clearance between the impeller and the cutter bar (see figure 3, noting vortex A). The blades 10 of the impeller function as chopping blades due to their interaction with the cutting bar, and extend from the impeller in a direction generally parallel to a central axis of the impeller. The impeller comprises a surface in a plane extending radially from a central axis to oppose the inlet flange, and chopping blade 10 having a curved member normal to the plane, with the curved member being shaped to create a vortex when rotated and comprises an edge/distal edge to be rotated about the central axis adjacent to the cutter bar. The cutter bar is adjustably coupled to the pump housing between the inlet flange and the impeller to allow adjustment of the clearance between the chopping blade and the cutter bar, via bolts 34. The clearance is suitably sized such that rotation of the impeller adjacent to the cutter bar imparts a shearing force on objects entrained in the fluid entering the pump chamber. The inlet port and outlet port both function as inspection ports, which permit observation of the

Art Unit: 3745

clearance between the impeller and the cutter bar, via manual inspection or a borescope. The impeller comprises a surface in a plane extending radially from a central axis to oppose the inlet flange, and a chopping blade 10 having a curved member normal to the plane, wherein the curved member is shaped to create a vortex A when rotated and comprises an edge to be rotated about the central axis adjacent to the cutter bar. Plural fasteners 34 are provided for coupling the cutter bar to the pump housing adjacent the inlet flange. The inspection port is provided to the inlet flange. Also disclosed is a method for operating the pump, the method comprising receiving the fluid through the inlet flange, rotating the impeller adjacent to the cutter bar to chop objects entrained in the fluid, and directing at least a portion of the fluid entering the pumping chamber generally toward the clearance between the impeller and the cutter bar.

However, Tsukube does not disclose that the chopping blade comprises a serrated portion that passes adjacent to the cutter bar 30/33 during impeller rotation, with the serrated portion comprising plural teeth (claims 1, 15, 22, 31, 39, and 50), and does not disclose that the cutter bar is a straight elongated rectangular member extending substantially across a diameter of a generally circular interior passage adjacent to the inlet flange (claims 1, 15, 22, 31, 39, and 50). Tsukube also does not disclose that the cutter bar is coupled to the pump housing by plural fasteners adjustable externally of the housing without disassembling the pump housing, with the clearance between the impeller and the cutter bar being adjustable externally of the housing by adjusting the plurality of fasteners (claims 7-8, 11-12, 20, 28, 37, and 44).

Nilsson (figures 3 and 5) shows a fibrous material chopping pump, whereby a centrifugal impeller 32 has chopping blades 35 that comprise a serrated portion, with the serrated portion comprising plural teeth, for the purpose of aiding in chopping fibrous material or any material passing through the pump.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to form the impeller assembly of Tsukube such that the chopping blade comprises a serrated portion comprising plural teeth, as taught by Nilsson, for the purpose of aiding in chopping fibrous material or any material passing through the pump.

United Kingdom Patent 1,486,237 shows a chopping pump having a cutter bar 11 that is a straight elongated rectangular member (the top and bottom faces form a rectangular member when viewed from the top or bottom of the cutter bar) extending substantially across a diameter of a generally circular interior passage adjacent to an inlet flange 16, for the purpose of reducing the size of solid material entering the pump. The cutter bar is coupled to a pump housing 1 by plural fasteners 15, 18 adjustable externally of the housing without disassembling the pump housing, with the clearance between the impeller and the cutter bar being adjustable externally of the housing by adjusting the plurality of fasteners, for the purpose of adjusting the gap width between an impeller 7 and the cutter bar.

It would have been further obvious at the time the invention was made to a person having ordinary skill in the art to form the modified impeller assembly of Tsukube such that the cutter

Art Unit: 3745

bar is a straight elongated rectangular member extending substantially across the diameter of the generally circular interior passage adjacent to the inlet flange, as taught by United Kingdom Patent 1,486,237, for the purpose of reducing the size of solid material entering the pump. It would have been further obvious at the time the invention was made to a person having ordinary skill in the art to form the modified impeller assembly of Tsukube such that the cutter bar is coupled to the pump housing by plural fasteners adjustable externally of the housing without disassembling the pump housing, with the clearance between the impeller and the cutter bar being adjustable externally of the housing by adjusting the plurality of fasteners, as taught by United Kingdom Patent 1,486,237, for the purpose of adjusting the gap width between the impeller and the cutter bar.

Concerning the recitation in claim 51 of observing the clearance between the cutter bar through the inspection port and adjusting a position of the cutter bar to create a suitably sized clearance, it would have been further obvious to a person having ordinary skill in the art to perform this, because the clearance is viewed directly through the inlet/inspection port, and one of ordinary skill in the art would have known that when the cutter blade contacts the impeller blades 10, the clearance must be increased, because one of ordinary skill in the art would not operate the pump with the cutter blade contacting the impeller blades.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher Verdier whose telephone number is (571) 272-4824. The examiner can normally be reached on Monday-Friday from 10:00-6:30.

Art Unit: 3745

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward K. Look can be reached on (571) 272-4820. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

C.V.
August 17, 2007


Christopher Verdier
Primary Examiner
Art Unit 3745